USDA NRCS
Natural Resources Conservation Service

Critical Area Planting

Alabama Guide Sheet No. AL 342

Definition

Critical area planting is planting vegetation, such as trees, shrubs, vines, grasses and/or legumes, on highly erodible, critically eroding, or potentially critically eroding areas. Examples of critical areas are dams, dikes, mine spoil, levees, cuts, fills, road banks, gullied areas where vegetation is difficult to establish by usual planting methods. These methods are also applicable to establishing vegetation on other conservation practices or farm construction sites where the soil profile is significantly disturbed. Ordinary conservation treatment usually cannot stablize these areas. If they are left untreated, severe soil erosion and sediment damage can occur.

Purposes

This practice is applied as part of a conservation management system to support one or more of the following:

- Stabilize the soil
- Reduce damage from sediment and runoff to downstream areas
- Improve wildlife habitat
- Improve visual resources

Planting Methods

Grading and Shaping

Minor grading and shaping using heavy equipment may be needed to provide a surface on which farm equipment can be safely and efficiently used for establishment and maintenance of the vegetation. In some cases it is necessary to remove rock, brush, trees, or other obstructions that will interfere with vegetation establishment or maintenance. Grading and shaping is not normally required where hydroseeding is to be used. Where possible, salvage topsoil during the grading and shaping operations to return to the site, spreading it uniformly over the area before seedbed preparation

Plant Selection

Proper selection of vegetation is essential. Vegetation will consist of perennial grasses, perennial legumes, trees, shrubs, vines, or mixtures of these types of vegetation. Temporary covers may be recommended in some cases (See Table 1), but the perennial vegetation establishment is required for completion of this practice. Plant selection should be based on plant characteristics, site and soil conditions, planned use and maintenance of the area, time of year of planting, method of planting, and the needs and desires of the land user. Plant species approved for use on critical areas are contained in Tables 2, 3, and 4.

Lime and Fertilizer

Lime and Fertilizer should be applied according to soil test recommendations, if possible, however; when a soil test is not available, use the following rates:

- Apply 2 tons of agricultural limestone per acre (if tall fescue and clover, use 3 tons/ac.)
- Lime should have a neutralizing value of not less than 90 percent calcium and 90 percent of the material will pass through a 10 mesh sieve and 50 percent will pass through a 60 mesh sieve.
- For grasses seeded alone, use 30 lbs. nitrogen, 100 lbs. P_2O_5, and 100 lbs. K_2O per acre at planting. Apply 30 lbs. of additional nitrogen when grass has emerged and begun growing.
- For grass and legume mixtures, use 30 lbs. nitrogen, 100 lbs. P_2O_5, and 100 lbs. K_2O per acre.

- For legumes seeded alone, use 100 lbs. P_2O_5 and 100 lbs. K_2O per acre.
- For woody ground covers, shrubs, vines, and trees planted on prepared seedbeds, apply 100 lbs. nitrogen, 100 lbs. P_2O_5, and 100 lbs. K_2O per acre in 3 split applications during the growing season.

Where conventional seeding methods are to be used, lime and fertilizer will be uniformly applied and thoroughly mixed into the soil during seedbed preparation for broadcast or drilled plantings. Where holes or furrows are used for individual plants, plant nutrients will be well mixed with the soil used to fill around the plant or placed in a separate furrow or hole 3 to 6 inches to the side, i.e. when dibbles are used for planting. Where hydroseeding is to be used, obtain a specific prescription from NRCS.

Seedbed Preparation

Seedbed preparation is not required where hydroseeding or conservation tillage will be used to establish vegetation. When conventional tillage methods are used, tillage should loosen the soil to a depth of at least 6 inches, alleviate compaction, and smooth and firm the soil for the planting operation. All tillage operations should be done on the contour.

When planting individual plants, dig holes, open furrows, or use dibbles appropriate for the plant species. Openings should be large enough to accommodate plant roots without crowding or bending the tap root. If planting pine seedlings in compacted soils, subsoiling deep enough to break the compacted layer should be performed prior to planting.

Planting Seed or Individual Plants

Conventional seeding will be done on a freshly prepared and firmed seedbed. Distribute the seed uniformly over the area to be treated with a cultipacker seeder, drill, rotary seeder, or by hand. Cover the seed with soil material to the proper seeding depth (Tables 1 and 2) during planting with a drill or cultipacker seeder, or if seed are broadcast on the surface, use a cultipacker or other suitable equipment to cover seed immediately after seeding.

Individual plants, such as trees, shrubs, vines, and sprigs can be planted with appropriate planter or hand tools. The soil shall be firmed around the roots. If possible, apply water to settle roots and prevent drying out of seedlings/sprigs.

Restrict Livestock

Livestock should be excluded from critical areas until they are completely established. This can be done through the installation of a temporary power fence.

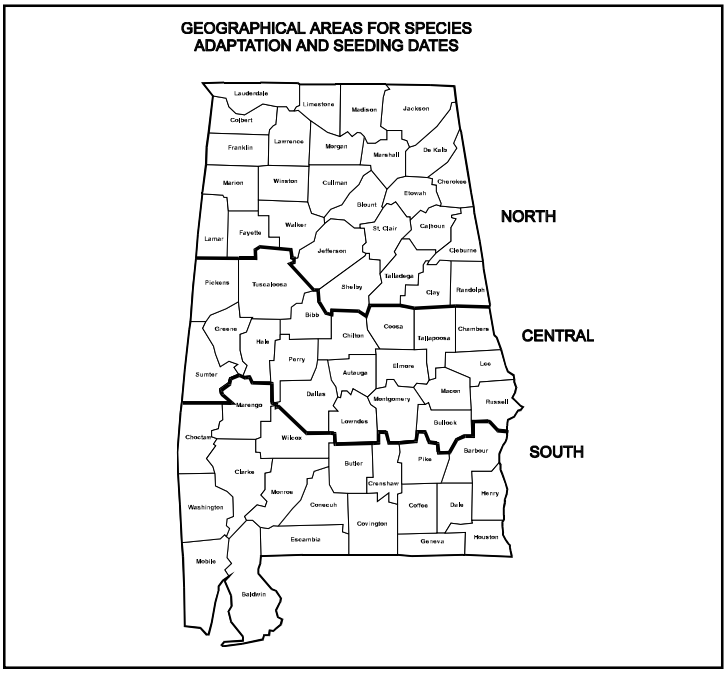

TABLE 1 - Commonly used Plants for Temporary Cover

Species	Seeding Rate/Acre	Seeding Depth	Seeding Dates North	Central	South
Barley	3 bu	1 in	Sep 1-Oct 30	Sep 1-Oct 30	Sep 1-Oct 30
Oats	4 bu	1 in	Aug 1-Oct 15	Sep 5-Oct 30	Sep 1-Oct 30
Rye	3 bu	1 in	Sep 1- Nov 15	Sep 15-Nov 15	Sep 1-Nov 15
Wheat	3 bu	1 in	Sep 1-Nov 1	Sep 15-Nov 15	Sep 15-Nov 15
Ryegrass	30 lbs	1/4 in	Aug 1-Sep 15	Sep 1-Oct 15	Sep 1-Oct 15
Millet, Browntop	40 lbs	1/2 in	May 1-Aug 1	Apr 1-Aug 15	Apr 1-Aug 15
Sudangrass	40 lbs	3/4 in	May 1-Aug 1	Apr 15-Aug 1	Apr 1-Aug 15
Sorghum-Sudan Hybrids	40 lbs	3/4 in	May 1-Aug 1	Apr 15-Aug 1	Apr 1-Aug 15
Bermudagrass, Common	10 lbs	1/4 in	Apr 1-Jul 15	Mar 15-Jul 15	Mar 1-Jul 15
Fescue, Tall	40 lbs	1/4 in	Sep 1-Nov 1	Sep 1-Nov 1	Sep 15-Nov 15

TABLE 2 - Perennial Grasses, Legumes and Mixtures; Seeding Rates; and Planting Dates for Critical Area Plantings on Prepared Seedbeds

Species	Seeding* Rate/Acre (inches)	Planting Depth	Planting Dates and Adapted Area			Remarks
			North	Central	South	
Bahiagrass, Pensacola	40 lbs	1/4 - 1/2	—*	Mar 1-Jul 1	Feb 1-Nov 1**	Low growing, sod forming & slow to establish. Tolerant to droughthy, low fertility sites.
Bermudagrass, Common	10 lbs	1/4 -1/2	Apr 1-Jul 15	Mar 15-Jul 15	Mar 1-Jul 15	Quick cover, low growing and sod forming. Intolerant of shade, low fertility & poor management.
Bahiagrass, Pensacola & Common Bermudagrass	27 lbs 7 lbs	1/4-1/2	—	Mar 1-Jul 15	Mar 1-Jul 15	Bermuda will provide quick cover until bahia is established.
Bermudagrass, Sprigs (Forage Type) or Common	30 bu	2-6	Apr 1-Jul 15	Mar 15-Jul 15	Mar 1-Aug 15	All hybrids not adapted for north Alabama. Hybrid intolerant to low fertility & poor management.
Bermudagrass, Hybrid (Lawn types)	Solid Sod	—	Anytime during year	Anytime during year	Anytime during year	Usually needs irrigation to establish.
Bermudagrass, Hybrid (Lawn Types)	Sprigs - 1 ft.	1/4-1/2	Mar 15-Aug 1	Mar 1-Aug 15	Feb 15-Sep 1	Usually needs irrigation to establish.
Fescue, Tall	D - 40 lbs*** B - 50 lbs	1/4-1/2	Mar 1-Apr 15 Sep 1-Nov 1	— Sep 1-Nov 1	— Sep 15-Nov 15	Good shade tolerance and does well on wet sites. Slow to establish. Does not establish well from spring planting.
Fescue, Tall & White Clover	D-40 lbs, B - 50 lbs D & B - 3 lbs	1/4-1/2	Mar 1-Apr 15 Sep 1-Nov 1	— Sep 1-Nov 1	— Sep 15-Nov 15	Good shade tolerance. Does well on wet sites and clay soils of Blackbelt.
Old World Bluestem	5 lbs PLS***	0-1/4	— Mar 15-Jun-15	Black Belt soils	—	Kings Ranch or Plains Bluestem. Adapted to chalky Blackbelt soils. Tolerant of poor management.
Sericea	D - 40 lbs B - 60 lbs	1/4	Mar 15-May 15 Jun 15-Jul 15	Mar 1-May 15 Jun 15-Jul 15	Feb 15-May 1 Jun 15-Jul 15	Suited for low maintenance. Well adapted to low fertility soils and mine spoil. Slow to establish.
Sericea & Common Bermudagrass	D-40 lbs, B-60 lbs D & B - 10 lbs	1/4	Mar 15-May 15 Jun 15-Jul 15	Mar 1-May 15 Jun 15-Jul 15	Feb 15-May 1 Jun 15-Jul 15	Bermudagrass will provide quick cover until Sericea is established.

* Bahiagrass planting in north Alabama is limited to counties contiguous to central Alabama plus St. Clair, Calhoun, & Cleburne.
** Fall planting of bahia should contain 45 pounds of small grain to provide cover during winter months.
*** D - drilled, B - broadcast, and PLS - pure live seed.
**** Tall fescue plantings in South Alabama are limited to land capability subclass w soils.

Notes: 1. Legume seed will be treated with the inoculant specific for the species of legume.
2. Seeding rates for FSA and State cost share practices shall be the rate specified in the program handbook.

TABLE 3 - Woody Plants, Shrubs, and Vines for Critical Area Planting

Species	Spacing	Mature Height	Remarks
Giant Reed Cane *(Arundo donax)*	1 ft apart in 4 ft rows	8-12 ft	Adapted to gully bottom. Use cuttings with 6 or 7 nodes. Plant upright and leave half the nodes above ground.
Japanese Honeysuckle *(Lonicera japonica)*	2-3 ft centers	12-18 ft	A vine which will climb. May be used on slopes as steep as 1 to 1. Good wildlife plant. Will tolerate light shade.
Memorial Rose *(Rosa weuchuriana)*	3-4 ft centers	2 ft	May be used on slopes as steep as 1 to 1. Rampant grower.
Periwinkle *(Vinca spp.)*	1-2 ft centers	6-12 in	May use on slopes as steep as 1 to 1. Will spread. Tolerant to semi-shade. Blue flowers in spring.
Shore Juniper *(Juniperus conferta)*	5 ft centers	2-3 ft	Emerald Sea or Blue Pacific cultivators are good. Adapted to wide range of soils. Tolerant of light shade.
Shrub Lespedeza *(Lespedeza bicolor & L. thunbergii)*	2 ft in rows 3 ft apart	8-12 ft	Adapted to well drained to somewhat poorly drained soils. Best adapted to coastal plains soils. Wildlife improvement plants.

Notes: 1. Woody plants, shrubs, or vines may take 2 years or more to provide complete cover; therefore, the area should be well mulched at planting and the mulch maintained until cover is obtained.

2. Plants would be set in late fall and winter (December 1 to March 1). Container grown plants may be planted anytime of the year if they can be watered until established.

TABLE 4 - Trees for Critical Area Planting

Soil Type	Species	Spacing	Remarks
Acid soils	Loblolly pine	6 ft x 8 ft	Adapted to sandy, loamy, and clayey soils.
	Longleaf pine	6 ft x 8 ft	Best on sandy soils.
	Virginia pine	6 ft x 8 ft	Adapted to wide range of sites.
	Slash pine	6 ft x 8 ft	Plant only in south Alabama. Well suited to wet, sandy soil.
Alkaline soils	Eastern redcedar	6 ft x 8 ft	Adapted to chalky Blackbelt soils.
	Cottonwood	6 ft x 8 ft	Adapted to mine spoil & wet sites.
	Sycamore	6 ft x 8 ft	Suited for mine spoil & wet sites.
	Black alder	6 ft x 8 ft	Best adapted to mine spoil.

Notes: 1. Planting dates are December 1 to March 15. These dates may be extended if trees are in containers or seedlings have been kept in cold storage.
2. Other trees and shrubs with wildlife value may be interplanted to enhance wildlife.
3. The 6 ft x 8 ft spacing is approximately 900 trees per acre.